

WHAT IS CLAIMED IS:

1. An internal voltage generator for a semiconductor device for receiving first through third control signals and
5 generating an internal voltage used in the semiconductor device when an external voltage is applied to the internal voltage generator, wherein:

the internal voltage used in the semiconductor device is a first voltage until a first control signal becomes equal to
10 the external voltage applied to the semiconductor device;

the internal voltage used in the semiconductor device is a second voltage until a second control voltage becomes equal to the external voltage after the first control signal becomes equal to the external voltage;

15 the internal voltage used in the semiconductor is a third voltage after both of the first and second control signals become equal to the external voltage; and

the first voltage is less than the second voltage and the second voltage is less than or equal to the third
20 voltage.

2. An internal voltage generator according to claim 1, wherein the first voltage has a voltage level following a level of the external voltage, and a level of the third

voltage is fixed.

3. An internal voltage generator for receiving an external voltage and outputting an internal voltage, the
5 internal voltage generator comprising:

a clamp means for outputting a first voltage;

first and second power up sensing means for sensing the external applied to the semiconductor device and outputting first and second control signals, respectively;

10 a first switch for receiving the first voltage;

a switch controller for receiving the first and second control signals from the first and second power up sensing means and controlling turn on/off of the first switch;

a second switch being turned on/off according to the
15 second control signal from the second power up sensing means for receiving a second voltage; and

an amplifier for selectively receiving the first and second voltages from the first and second switches and outputting the second voltage.

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4. An internal voltage generator according to claim 3, wherein, when the external voltage is applied to the semiconductor device, a first time period which it takes while a signal level of the first control signal changes from

a low level to a high level is smaller than a second time period which it takes while a signal level of the second control signal changes from a high level to a low level, the first control signal being an output signal of the first power up sensing means, the second control signal being an output signal of the second power up sensing means.

5. An internal voltage generator according to claim 4, wherein:

10 when both of the first and second control signals are at low levels, the first and second switches are turned off and the internal voltage is the external voltage supplied through a MOS transistor which is enabled according to the first control signal;

15 when the first control signal is at a high level and the second control signal is at a low level, the first switch is turned on and the second switch is turned off, and the internal voltage is a signal obtained by amplifying the first voltage applied to the first switch through the first switch;

20 and

when the first and second control signals are at high levels, the first switch is turned off and the second switch is turned on, and the internal voltage is a signal obtained by amplifying the second voltage applied to the amplifier

through the second switch.

6. An internal voltage generator according to claim 3,
wherein:

5 both of the first voltage and the second voltage are
reference voltages;

the third voltage is the internal voltage from the
internal voltage generator; and

when both of the first and second control signals are at
10 low levels, a potential level of the third voltage is
approximately double than that of the first voltage or the
second voltage.

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